QUANTEL OPEN

TCP/IP

IMPLEMENTATION

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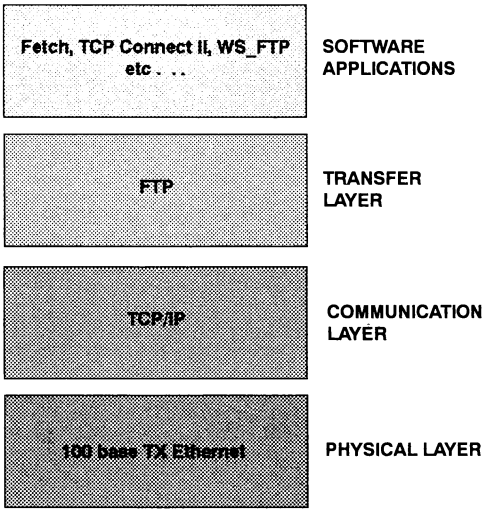
TCP/IP
IMPLEMENTATION

INTRODUCTION

Overview



This document details technical information about Quantel Open TCP/IP system architecture. This uses industry standard 100Mbit ethernet, known as 100Base-TX, as the physical carrier, TCP/IP as the communications software protocol, and an industry standard FTP server. TCP/IP is widely supported and therefore allows easy access from standard hardware and software to Quantel's networked disk system.

The TCP/IP protocol is available on nearly all of Quantel's latest products which support the 100Mbit ethernet interface. These include Video, Film and Graphic Arts products and Quantel's Picturenet Plus, multi-standard networking system.

The **Quantel FTP Functions** section details the FTP commands supported and any extensions provided over and above standard FTP commands. This covers command, syntax and description.

The **Quick Start** section illustrates connections to Quantel from common hardware and operating systems. This should help first-time users unfamiliar with both FTP and/or networking. Common functions are documented here by example.

The **Contacts** section contains useful information for customers or third-party integrators and developers. Those who need more detail are referred to the published literature for information on 100Base-TX Ethernet, FTP, TCP/IP protocols, TIFF, TARGA, Truetype, file formats. This document assumes knowledge of the above specifications. Quantel's own VPB file format is freely available as a published specification on request from Quantel.

OPEN@QUANTEL.COM

Quantel's website has a section dedicated to all Quantel's OPEN technologies. Information contained in this booklet is also available there. There are developer resources like Quantel's VPB specification and other useful information. Check out Quantel OPEN on **www.quantel.com/open**

THE QUANTEL FTP SERVER

Overview of Quantel TCP/IP and FTP

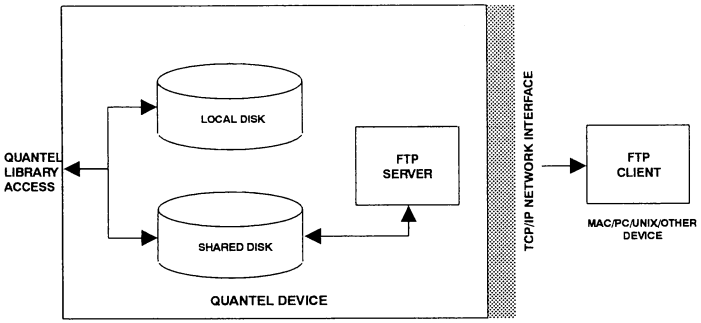
Quantel supports an FTP server which allows external devices to read, write and delete images from network connected disks. These disks may be inside specific machines, such as a Paintbox Express, or network available disks inside a Picturebank Express, or networked magneto-optical disks. The commands that are supported are listed in Quantel FTP Functions.

In addition to supporting the standard FTP server protocol a number of extensions have been added. One extension provides automatic conversion from Quantel's internal video file format, which is based on YUV ITU-R 601 video, to standard computer graphic file formats such as RGB TIFF and RGB TARGA. This helps when transferring files between Quantel machines and standard graphics and rendering packages.

Other extensions provide more sophisticated access to Quantel's own file system via extra FTP switches. These allow access to fields such as category, owner/job, number etc. which are specific to Quantel. This also provides access to data such as the browse image. Third-party manufactures may wish to make use of these for closer integration between their software and Quantel's file system.

Quantel's video and film machines also handle the different aspect ratios available in the different video standards and the computer animation world. Most computer systems work with square pixels, where the x and y aspect ratio are 1 to 1. 625 line systems and 525 line systems have non-square pixels where, for example, the ratio for NTSC is 180 to 162, or about 1.11. Quantel's hardware can resize images both on the way in and on the way out to correct between all these different standards.

The Server/Client Architecture



Quantel's FTP solution is Server/Client based. The Quantel device acts as an FTP server and third-party devices are clients. The Client is able to send FTP commands to the Server to execute the many functions which are described in this document. These may include sending/receiving actual files, directory search functions, altering file information. Each Quantel machine which has the TCP/IP option installed and enabled has these functions.

Typically each Quantel device (Hal, Editbox etc) with the TCP/IP option has at least two disks for storing picture and other data: Local and Shared. These are in the Library and can be used for normal Library functions.

1 **Local Disk**

The local disk is local to that machine and private in the sense that it is not available to other networked devices (Quantel or third-party). Picture and other data stored here is therefore protected from network access.

2 **Shared Disk**

The shared disk is also physically local to the machine. Once Picture and other data have been copied to or saved here it is available to other networked devices (Quantel and third-party) via FTP network access (including deletion!).

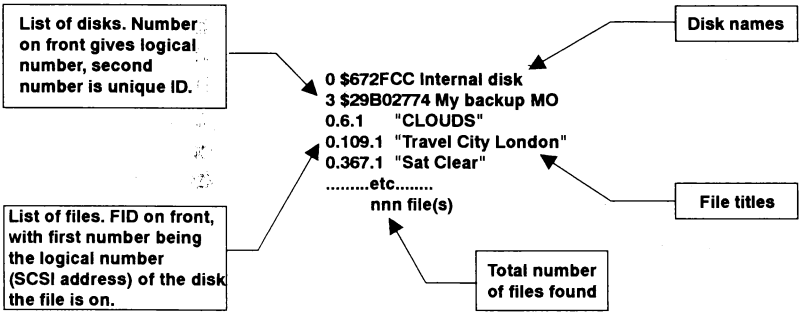
☞ **Important Note: The server/client relationship means all devices which support TCP/IP and FTP can theoretically access any Quantel device. However, the Quantel devices never act as clients. A Quantel device does not initiate network transfers to/from a third-party device.**

Directory Format

All files on Quantel systems are identified by their title. This file title may be a duplicate, contain spaces and odd characters. It is not restricted to the file naming protocols used by PCs and Macs. An alternative method of individual file identification, based on a unique number, is used.

All files on Quantel systems are identified internally by this unique number in the form x.y.z. This number is called a File ID. The FID is made available to the user in the directory listing so it can be used to access a particular file. The file title is also given along side the FID. FIDs are unique within the disk and will not be reused.

The disks within a system can also be listed. The disks also have a number which is unique. These numbers will not be reused and should be unique across the world. It can therefore be used to track disks. Directory listings are unsorted. An example is given below:


List of disks. Number on front gives logical number, second number is unique ID.
Disk names
0 $672FCC Internal disk
3 $29B02774 My backup MO
0.6.1 "CLOUDS"
0.109.1 "Travel City London"
0.367.1 "Sat Clear"
.....etc.....
nnn file(s)
File titles
List of files. FID on front, with first number being the logical number (SCSI address) of the disk the file is on.
Total number of files found

The example directory listing can be modified using the /files, and /format switches.

Supported File Formats

The following file formats are supported by the Quantel Open protocol TIFF RGB(A),TARGA RGB(A) and Quantel's own file format called VPB. The two industry standard file formats are supported by many computer packages. TIFF is the preferred format for Macintosh while TARGA is preferred for PC platforms. However most competent packages can read and write both.

In addition, the Truetype font format is supported. This enables the import of Truetype fonts.

Brief details of the file formats supported are given below. If there are differences between what is supported for input or output they are detailed with export referring files being read out of Quantel equipment and import referring to files being written into Quantel equipment.

Video and Film products support aspect ratio fields and these are used to handle any required aspect ratio in all three file formats. Quantel's Graphic Arts machines, such as Graphic Paintbox, carry these aspect ratio fields, but do not use them as they already work with 1:1, square pixels.

TIFF

The TIFF file format has many varieties and supports grey scale, FAX format, etc. Quantel ONLY supports RGB or RGBA TIFF format files, where the A stands for Alpha and is transferred to Quantel's stencil. RGB TIFF files equate to pictures while RGBA TIFF files equate to cutouts.

Quantel accepts the RGB or RGBA data in what is known as chunky format, ie the data is arranged as RGBRGBRGB. Quantel does not support planar or line based formats. There are two byte order formats known as Motorola and Intel. You can import either, but exported files will be in Motorola format.

TARGA

TARGA has a number of different formats. Quantel supports the import and export of TARGA 2 which is an RGB or RGBA format. RGB files equate to pictures while RGBA files equate to cutouts.

For import TARGA 10, which is an RGB run length encoded format often produced by 3D packages, is also supported.

Quantel VPB

VPB files are Quantel's own internal format and consist of a header and then the data. There are three formats of VPB file; Video VPB based on YUV CCIR 601 and VPB RGB or CMYK files used for Quantel's Graphic Arts products. The actual details of the file format are available free on request from Quantel. VPB files support pictures, cutouts and stencils plus optional browse images.

TrueType

Quantel products are now starting to support TrueType fonts. TrueType fonts are easy to import and allow Quantel to support languages like Japanese and Korean. TrueType fonts imported to Quantel must contain Unicode mapping tables. These fonts are often referred to as Windows 95 format fonts and must conform to the TrueType specification (TTF). Quantel does not support TrueType Collection Fonts (TTC). See the section on TrueType fonts for more information.

Graphic Arts Machine Features

Quantel's Graphic Arts machines, such as Graphic Paintbox 2, use FTP in a slightly different manner to the video product range. This is because these products need to handle multiple colour spaces and multiple data planes.

The main difference is that the FTP server only supports VPB file format and the file conversion is done by dedicated software at the host end. Every Graphic Arts machine that supports FTP has a Macintosh program which acts as FTP client and file conversion subsystem. Quantel currently supports via this software RGB and CMYK TIFF, both chunky and planar forms, and RGB and CMYK Scitex Handshake™.

There are extra FTP commands and switches providing access to information which is only relevant to these machines. These relate to colour space and data planes. See Basic FTP Commands for more details on the commands and switches.

Quantel FTP Server set-up

The TCP/IP protocol needs what is known as an IP address and host name. IP addresses have the form xx.xx.xx.xx, where xx is a number in the range 1 to 254. If you are already running a TCP/IP network then someone within your organisation will be in charge of allocating IP addresses. It is important to obtain IP addresses from this person as incorrect or duplicate addresses will cause problems.

If no TCP/IP network, or network connection is currently used in your organisation then any IP address can be used. An arbitrary address of 123.45.67.89 will do.

If you intend to connect Quantel systems to a wide area network you should ensure your organisation has permission to use a particular IP address.

The IP address and host name of Quantel equipment is set using a diagnostic terminal plugged into the Snetcomm netcomm port (see associated manuals for details of the socket and pin connections). The diagnostic command is:

TCPIP>SETHOST xx. xx. xx. xx PAINTBOX_A (where xx is in the range 1 - 254)

A command GETHOST will display the current IP address and host name of the system.

Performance Issues

There are three issues relating to performance: File type, Directory searching and TCP/IP.

FILE TYPES

On video products the FTP server automatically converts to and from TIFF and TARGA. The conversion of ITU-R 601 video files to TIFF or TARGA files can significantly increase the transfer time. There is more data, due to the 4:4:4 nature of the RGB, and the Quantel network board also has to convert the RGB to YUV during the transfer. This can increase transfer times by up to 300%.

TIFF files are first copied into a machine's shared disk and then processed. As the TIFF file format does not allow on-the-fly conversion of the data, TARGA is therefore quicker on input as it is a simpler format.

VPB files will be transferred in the quickest time as they are smaller (4:2:2) and in the native format of the Quantel machine. If the third-party application can read and write this format directly then VPB files should be used in all cases. See Contacts for applications which do this.

DIRECTORY SEARCHING

Nearly all products Quantel use ultra-fast 4Gbyte SCSI discs and this can result in large numbers of files. The Directory command uses an indexed search to find images quickly. It is recommended that, where possible, selective searches are used rather than open searches which can result in long downloads of file information.

While Magneto-Optical removable disks (available on most Quantel machines as interchange devices) can be run indexed they are normally run un-indexed for back compatibility with older machines. Therefore searches will be done linearly and will be slower than searches of fixed (indexed) disks.

If any performance issues are found during directory searching it is worth checking that the internal disks are indexed. This is controlled via the menu system on the Quantel machine (refer to the modules for a given machine).

TCP/IP

A wide range of transfer speeds have been seen when testing with third-party packages. The performance can vary by as much as 8 to 1. This depends mainly on the software package, the processor speed and i/o sub-system. Quantel has found systems using 10Mbit Ethernet connected through a hub that work faster than a system using 100Mbit Ethernet direct! A maximum speed of 400Kbytes a second has been seen on a well written and tuned TCP/IP system.

QUANTEL FTP FUNCTIONS

General TCP/IP and FTP

Quantel's TCP/IP and FTP server support the features documented in this section. Users are referred to the standard text books and RFCs for additional information. Below are listed how Quantel handles these features.

PING

The FTP server responds to a Ping command and a Ping command is available via the diagnostic port.

LOGGING IN

The standard users FTP, ANONYMOUS, or GUEST are supported. No password is required. Quantel does not support a security database.

TIME-OUTS

Any login that has not been active after 5 minutes is timed out. A data time-out of 1 minute is used. If a longer time-out is required then the cd /timeout switch can be used.

ABORT

The abort function is not supported as it needs a Telnet connection.

FTP Client access

An FTP Client initiates a connection to the Quantel FTP Server (the Server/Client Architecture is explained on page 1-6). Once your system is configured for TCP/IP you should be able to run a client application for FTP. For more information on FTP see Frequently Asked Questions.

There are two main types of FTP application which can access the Quantel FTP Server:

COMMAND LINE

Command-line FTP is the most basic form of access. The commands must conform to the syntax required for the particular operating system you are running. All the commands included in this document can be used for file handling and transfers. The Unix section of Quick Start illustrates command-line access.

GUI-BASED APPLICATION

To make FTP accessible to less-technical users many applications have a graphical user interface (GUI). Many of the FTP commands can therefore be hidden from the user and FTP access is generally easier to use. They may also automate and provide scripting capabilities to simplify the transfer of many files. Many of these applications are also able to send FTP commands typically via a Change Directory menu or button.

Basic FTP commands and switches

These are the FTP commands supported by Quantel's FTP server. The cd (cwd - change working directory) and rename commands are used with switches to extend the flexibility of searches and access to file types.

The commands are listed with the correct syntax and a brief description. There are examples of frequently used commands in the Quick Start section.

☞ **Important Note: Switches are used with FTP commands like cd/ to extend and develop the flexibility of FTP. This may be unfamiliar to those used to FTP command-line access.**

QUANTEL FTP FUNCTIONS

Command	FTP Internal	Description
pwd	(pwd)	provides detail of the present working directory
cd	(cwd)	allows the working directory properties to be changed
dir	(list)	obtains a directory listing
get	(retr)	extracts a file from the Quantel disk to the third party
put	(stor)	adds a file provided by the third party to the Quantel disk
rename	(rnfr,rnto)	allows certain properties of the Quantel files to be altered
delete	(dele)	allows files to be deleted

☞ **Important note: All FTP transfers need to be carried out in the binary or image format. Once the user is logged in the correct format can be set by typing bin at the ftp prompt or in the appropriate place for a gui-based FTP Client application.**

pwd

Syntax	**pwd**
Example	**pwd**
Description	The pwd command returns the present working directory in the form: 0 $672FCC ABC
where...	Quantel Disk number according to FTP = 0 Quantel Unique disk ID = $672FCC Quantel Disk name = ABC

When you first login the first disk found is usually 0.

cd

Syntax	**cd /<switch>**
Example	**cd /def**
Description	The cd command traditionally allows you to change between directories. In this case the cd function has been extended to change between different qualifiers or switches. A number of search switches allow the user to create a set of search parameters or a search filter. These are:
Volume	/**vol**=volume number
File type	/**pic/cut/sten/ttf**
Date	/**date**=7 Nov 1995, today, date range etc
Title	/**title**=<string> or <word> or <character>
Category	/**cat**=<string>
Owner	/**owner**=<string>
Number or number range	/num=num1-num2

These switches are cumulative and the filter remains set until it is cleared by using a /**def** switch which resets the search filter to a default set of parameters.

The following are also useful switches which control the operation of the Quantel FTP Server. These are more fully explained in the following pages. They are:

/format, /files, /timeout, /aspect, /tiff, /tga, /vpb, /ttf

QUANTEL FTP FUNCTIONS

cd /def

Syntax	**cd /def**
Example	**cd /def**
Description	Reset all switches to default. A directory listing following a cd **/def** will return all the picture files present on the Quantel disk with 20 visible (as the default is max=20).

cd /timeout

Syntax	**cd /timeout=time in seconds**
Example	**cd /timeout=600**
Description	Set the timeout interval in seconds. A low value may cause lost connections Max value = 2000000

cd /vol

Syntax	**cd /vol=volume number**
Example	**cd /vol=0**
Description	Set the volume name search parameter to a logical number (0 in the example)

cd /pic

Syntax	**cd /pic**
Example	**cd /pic**
Description	Set search parameter to pictures (default under **cd /def**). Will override sten, ttf, cut

cd /sten

Syntax	**cd /sten**
Example	**cd /sten**
Description	Set search parameter to stencils. Will override pic, ttf, cut

cd /cut

Syntax	**cd /cut**
Example	**cd /cut**
Description	Set search parameter to cutouts. Will override sten, ttf, pic

cd /ttf

Syntax	**cd /ttf**
Example	**cd /ttf**
Description	Set the search parameter to TrueType fonts. Will override sten, pic, cut.

cd /date

Syntax	**cd /date=<dd mmm yyyy> or <today> or <date range>** etc
Example	**cd /date="7 Nov 1995"**
Description	Set search parameter for files created on this date.

cd /title

Syntax	**cd /title=<character> or <word> or <string>**
Example	**cd /title="Sports News"**
Description	Set title search parameter. See Quick Start for more examples.

cd /category

Syntax	**cd /category=<string>**
Example	**cd /category="Sports Graphics"**
Description	Set category search parameter.

cd /owner

Syntax	**cd /owner=<string>**
Example	**cd /owner="Jon Smith"**
Description	Set owner search parameter.

cd /number

Syntax	**cd /num=<num> or <num1>-<num2>**
Example	**cd /num=12 or 12-15**
Description	Set number or number range search parameters.

Directory & Search Management

Four switches allow the way that the **dir** command returns the list of files to be controlled. These are /**next**, /**reverse**, /**max** and /**from** and are described under the **dir** command.

dir

Syntax	**dir**
Example	**dir or dir /from= <n> or dir /max=<n>**
Description	The directory command allows you to list the files present on any of the available Quantel disks. All files on Quantel systems are identified by their title. All files on Quantel systems are also identified *internally* by a unique set of numbers in the form x.y.z. This is called a FID (See Directory Format page 1-7). This number is made available to the user in the directory listing so it can be used to access a particular file. The file title is also given alongside the fid. The presentation of the listing can be altered using the cd /format and cd /files switches. *example: 0.109.1 Travel City London*

Information about the Quantel disks available(fixed or removable) is given at the top of a directory listing and the number of files found is given at the end (unless the search is of an un-indexed disk, such as a Magneto-Optical). The list format is shown below.

```
0  $672FCC  Internal disk
3  $29B02774  My backup MO
0.6.1  CLOUDS
0.109.1  Travel City London
0.367.1  Sat Clear
.....etc.....
     nnn file(s)
```

cd /format

Syntax	**cd/format=<form>,<form>...**
Examples	**cd /format=fidfirst**
shows...	"0.109.1 Travel City London"
	cd /format=fidlast
shows...	"PictureTitle 0.109.1"
	cd /format=noquotes
shows...	0.109.1 PictureTitle
	cd /format=quotes
shows...	"0.109.1 PictureTitle"
Description	Used for formatting the directory listing. There are many ways to present FTP information to FTP client applications. This switch allows flexibility to address many different clients. The above examples shows the listing results when using these formats.

cd /files

Syntax	**cd /files**
Example	**cd /files**
Description	Makes a directory listing which consists of files only and excludes volume information and file count. This can be used with dir and mget commands.

In order to give the *dir* command more flexibility switches are provided to structure the search. These include search parameters as used by the cd command plus additional switches: **/max, /next, /reverse, /from.**

These switches can be combined in any order. They are cumulative and one directory command can contain several switches (see the Quick Start section for an example). The search parameters are not stored in the filter for subsequent searches. Once the search is complete the filter returns to its default search filter ie the one set up by the cd command, unless the switch **/next** or **/reverse** is used to continue the listing.

cd /max

Syntax	**cd /max=<n>**, default is 20 set with **/def**
Example	**cd /max=35**
Description	List a maximum of 35 files

cd /next

Syntax	**cd /next**
Example	**cd /next**
Description	Read the next block of files in the directory

cd /reverse

Syntax	**cd /reverse**
Example	**cd /reverse**
Description	Read the next block of files backwards from the end of the disk.

cd /from

Syntax	**cd /from=<n>**
Example	**cd /from=150**
Description	Search from the n^{th} file in the volume. Search from file 150 in the volume.

Note: The dir command followed by a string, word or character not included in the switch list will execute a title search using that particular string, word or character. If an invalid switch is used the default directory listing will be given. For example the FTP command: dir sports/max=25 will execute a search for titles containing the word sports and list a maximum of 25 files.

The directory defaults to only listing 20 file entries, although this can be changed with the **/max=n** switch. Subsequent entries in the list can be obtained by calling the dir command without any other parameters other than **/next** or **/reverse** for forward or backwards movement through the directory respectively. A new search will reset the directory to the beginning of the list.

The **/max=n**, **/next** and **/reverse** commands can be applied to the cd command. In this case the **/max=n** sets the number of entries displayed for each call to **dir**. The **/next** and **/reverse** cause the dir command to work as if it had a **/next** or **/reverse** parameter every time

File Transfer Modes

Six switches are used to set up the mode of file transfer: **/tiff, /tga, /vpb, /ttf, /browse, /header**.

☞ **Important note: This applies to transfers *to and from* the Quantel FTP server. For example, if you wish to transfer a TIFF file *to* Quantel then this switch *must* be set before transfer. Alternately, if you wish to transfer a file *from* Quantel the switch MUST ALSO BE SET before transfer.**

cd /tiff

Syntax	**cd /tiff**
Example	**cd /tiff**
Description	Set the mode of file transfer to TIFF. With Transfers *from* Quantel the YUV (K) or (S) picture data is converted to RGB(A) and the file is sent as a new format TIFF file. With Transfers *to* Quantel the RGB(A) picture data is converted to YUV (K) or (S) and is available via normal Quantel library access.

cd /tga

Syntax	**cd /tga**
Example	**cd /tga**
Description	Set the mode of file transfer to Targa. Format conversions direction dependent as for TIFF.

cd /vpb

Syntax	**cd /vpb**
Example	**cd /vpb**
Description	Set the mode of file transfer to Quantel VPB. With Transfers from Quantel the YUV picture data is sent as a new format Quantel VPB file. With Transfers to Quantel the picture data is expected to be Quantel VPB and is available via normal Quantel library access. This is used for transfers only not directory searches.

cd /ttf

Syntax **cd /ttf**

Example **cd /ttf**

Description Set search parameter to Truetype fonts. Will override sten, pic or cut. When using ttf to transfer a Truetype font the correct name will be extracted from the font and put in the Quantel title field.

cd /browse

Syntax **cd /browse**

Example **cd /browse**

Description Set the mode of file transfer to browse. Browse enables the transfer of the thumbnail browse image of a native Quantel VPB file (if it exists). This enables third-party applications to browse Quantel disks. This can be extracted as a vpb, tga or tiff file.

cd /header

Syntax **cd /header**

Example **cd /header**

Description Set the mode of file transfer to header. Header enables the transfer of the header information of a native Quantel VPB file in the form of a text file. The header contains all the file descriptor information of a Quantel VPB file including: file type, title, volume, owner, category, number, date of update, image width, image height, status, resolution and description. This enables third-party applications to build databases of file information from Quantel disks.

Note: See the header example on P1-64

File Transfers

☞ **Important note: This applies to transfers *to and from* the Quantel FTP server. For example, if you wish to transfer a TIFF file *to* Quantel then this switch *must* be set before transfer. Alternately, if you wish to transfer a file *from* Quantel the switch MUST ALSO BE SET before transfer.**

☞ **Important note: All FTP transfers need to be carried out in the binary or image format. Once the user is logged in the correct format can be set by typing bin at the ftp prompt or in the appropriate place for a gui-based FTP Client application.**

get

Syntax	**get <fid>/<format><title>.<format>**
Example	**get 0.112.9/tga footballer.tga or** **get 0.112.9/tiff footballer.tif**
Description	The get command allows you to retrieve files from the Quantel volumes available. The format of the file can be selected by using switches (**/tga, /tiff, /vpb, /ttf**). The default file format is vpb (which can be set by using **/vpb**). The files which the get command will retrieve is determined by searches. The switches /pic, /sten, /cut, /ttf can be used to filter for particular file types stored in Quantel. Get can also be used to get browse and header information for these files.

mget

Syntax	**mget /repeat**
Example	**mget /repeat**
Description	Once a directory search has been completed mget/repeat will retrieve all files listed. It is important to use **cd /files** first to remove unwanted directory information from search results. The file names will also appear more logical if **cd /format=fidlast, noquotes** is used. An example of the complete process: **cd /dir/tga** **cd /format =fidlast, no quotes** **mget /repeat/files**

put

Syntax	**put <title>.<format> /<format>**
Example	**put footballer.tga /tga** **or put footballer/tif**
Description	The put command allows a vpb, tga, tiff or truetype format file to be transferred from a third party onto any of the Quantel disks available. As with the get command the **/tga, /vpb, /ttf /tiff** switches are used. TIFF and Targa RGB(A) picture data is converted to 8 bit YUV and a vpb header is created. Any pictures that are not a multiple of 8 pixels wide are padded with black as they are converted.

☞ **Important note: TIFF or Targa files titles are handled by the Quantel FTP server automatically in one of three ways:**

1. If the file has a title embedded in it then this will be used.
2. If there is no embedded title and the STOR command contains a filename eg Pic2.tga this will be used.
3. If neither of the above is true then it will substitute the default title No title - tga or No title - tiff respectively.
4.
5.

mput

Syntax	**mput *.tiff**
Example	**mput *.tiff or mput*.tga**
Description	Files will be transferred from the currently specified client local directory. The * denotes a wild card which will find all files with the same suffix eg **.tif** or **.tga**. The mput command should be preceded by a file format switch eg. **cd /tga.**

cd /aspect

Syntax	**cd /aspect** = or **PAL** or **<integer>:<integer>**
Example	**cd /aspect= PAL** **/aspect=NTSC** **/aspect=SQR** **or /aspect=2103:2300** **/aspect=2133:1940** **/aspect=1:1**
Description	Forces aspect ratio of pictures. Use before put or sending files to Quantel. These numbers must be whole numbers (integers). Any integers can be used but the above examples are typical.

cd /name

Syntax	**cd /name=forcedname**
Example	**cd /name=Mypicture**
Description	Forces name or title on Quantel system. Files transferred will then have the name specified. Useful alternative to rename.

rename

Syntax	**rename <fid>/<field>=<string>**
Example	**rename 0.112.9 /title=Sport News** **rename 0.112.9 /cat=Graphics** **rename 0.112.9 /owner=Rob** **rename 0.112.9 /number=12** **rename 0.112.9 /description=Use for News Yr 2000 Olympics**

Description	The rename command allows the user to access and alter certain fields in the vpb header. The following fields are made available: **/title, /cat, /owner, /number, /description.**

Note 1: /number. If the number chosen is not available then an error will be generated. If the number has a '+' after then the next free number will be found.

Note 2: /description. If the description is more than one line in length the following format should be used

/description = line one
/description = ...line two
/description = ...line three

delete

Syntax	**delete <fid>**
Example	**delete 0.112.96**
Description	The delete command will deindex the requested file then delete it.

☛ **WARNING: THIS WILL PERMANENTLY DELETE THE FILE FROM THE QUANTEL SHARED DISK. USE WITH CARE.**

Additional commands for Graphic Arts Products

Quantel's Graphic Arts products have a slightly different file system to other Quantel Products. This is due to its ability to handle multiple colour spaces and separate data planes. In particular all files are stored as **/pic** files and then two switches allow the individual types and parts of the files to be searched for. This is achieved via two additional switches on the **cd** or **dir** command.

These switches work with the other switches listed previously. They are cumulative and the filter remains set until it is cleared by using a **/def** switch which resets the search filter to a default set of parameters. A directory listing following a **cd /def** will return all the picture files present on the Quantel disk. The two additional switches are: **/colour** and **/attribute**.

colour

Syntax	**/colour=colour space**
Example	**/colour=RGB or /colour=CMYK or /colour=RGB+CMYK**
Description	The colour command allows the selection of files with a specific colour space. The only valid options are CMYK or RGB. They can be combined with a +, ie RGB+CMYK. Not giving a colour space will cause all files to be found, but only RGB or CMYK files are valid to transfer.

attribute

Syntax	**/attr= value**
Example	**/attr=pic or /attr=mask or /attr=black or /attr=pic+mask**
Description	Currently only picture data can be transferred to and from Graphic Paintbox 2. However the attribute command allows the searching of files based on their content. Unlike the Video products the Graphic Art machines store all planes of the image in the same file (/**pic**). The attribute command can then search these image files to find if they contain a particular plane. So searching for /**attr**=pic will find all image files that contain a picture plane. As with the other commands they can be combined. So searching for /**attr**=pic+mask will only find pictures that have a picture *and* mask plane. All file transfers are in VPB format and the valid formats for transfer are RGB and CMYK. See Quantel VPB format specification for details of the file format.

QUICK START - PRACTICAL EXAMPLES

Introduction

This guide is not designed to:

- be a comprehensive how-to manual.
- teach users how to operate their own systems.
- teach users about networking.

It is however designed to broadly illustrate the connection of three different platforms and operating systems to Quantel. This should help users who are new to networking or unfamiliar with terminology and basic operation of an FTP server/client application. Users need to know how to:

- operate and configure third-party devices at a physical and operating system level
- configure TCP/IP for network addresses and Ethernet.
- use FTP client application software
- understand the basics of file formats.

Once cables are connected and TCP/IP addresses have been defined the operation of FTP file/data transfer requires software on the third-party platform. This software is able to execute FTP commands which are sent to the Quantel FTP server. These software applications vary widely between platforms. The following example sections take one application as a reference.

There are examples of frequently used commands. Although there should be no difference when using command-line FTP access the reference applications may have different ways to apply the same command. It is therefore important to understand how your specific FTP client software works.

☞ **Important note: None of the applications mentioned are specifically endorsed or recommended by Quantel.**

Note: Users may also find the Quantel FTP Commands, Frequently Asked Questions (Appendices Page 1-66) parts of this document useful.

Overview of physical connections

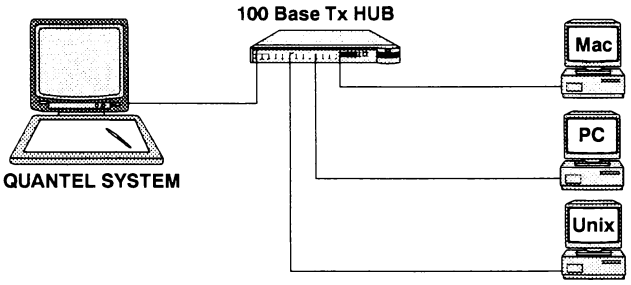
There are two main types of physical connection: without a hub, and with a hub. In addition there may be different standards implemented across platforms requiring a mix of 100 and 10Base connections. Quantel systems need 100Base-TX but devices which only support 10Base connections can still talk to Quantel devices. In this case with an appropriate mixed hub although with a corresponding loss of bandwidth (therefore performance).

CONNECTIONS WITHOUT A HUB

In a small or focused environment there may only be two devices which need connecting: the Quantel device and third-party device (Mac/PC/Unix). These can be cabled directly together with a Cat 5 twisted-pair crossover cable with RJ-45 connectors. The cable needs crossover to enable the correct relationship between transmit/receive connections.

Technical note: Cat 5 twisted-pair cable normally has four pairs. Crossover refers to the fact that pairs 2 and 3 have been crossed over. This cable can be supplied by Quantel or any reasonable PC peripherals supplier.

CONNECTIONS WITH A HUB



Environments with more than two networked devices must have a hub. The hub is used to connect all the different devices together in a star topology. Standard hubs typically have 4, 8, 12, 16 etc. ports each of which supports a 100Base-TX connection. Hubs may also support ports for 100Base-TX *and* 10Base connections for mixed bandwidth networks.

The cable for 100Base-TX connections should be Cat 5 twisted-pair straight cable with RJ-45 connectors.

Technical note: To make use of Quantel FTP the Quantel device must be connected to a 100Base-TX port on the hub. It is also possible to use a hub and straight cable for only two devices. There are also maximum distance limits specified for 'safe' Ethernet connections.

Connecting Macintosh

☞ **Important note: There are many different versions of Apple Macintosh hardware and operating system. It is not possible to cover all these variations so this is an example of what is generally required for FTP communications between Quantel devices and Macintosh.**

HARDWARE AND SOFTWARE

Generally the Macintosh needs to have:

- 100 base-TX Ethernet hardware via a card.

  Note: 10 base connections would be acceptable with an appropriate hub. See Overview of Physical Connections

- TCP/IP software support.

  Note: This is either an extension to the operating system (MacTCP for System 7 and earlier) or built-in to Open Transport (Mac OS 7.5 onwards).

- FTP software application.

  Note: This software enables FTP commands to be sent to Quantel. Software varies from commercial communications packages like TCP Connect II to shareware applications like Fetch. Applications like these may also provide a graphical user interface to the normal command-line structure required by FTP. In addition, you may open an FTP shell to send command-line FTP to the Quantel server.

TCP/IP SETUP

Once systems are physically cabled together and TCP/IP software is installed for use the Macintosh needs to be given an IP address. This identifies the device on the TCP/IP network. If you have a large or administered network your network manager may already have done this. If not, you need to refer to your Macintosh software documentation.

You also need to tell your Macintosh about the devices you wish to connect to. Each Quantel device needs to be set up with a unique IP address. The Quantel procedure for this is defined in the SERVER SET-UP section of this document. The address of the Quantel device needs to be entered into the HOSTS file of the Macintosh. This is a simple text file called Hosts. It is a list of all the devices which you wish the Macintosh to have access to on TCP/IP. This normally resides in the SYSTEM folder. The HOSTS file is accessed by applications and the operating system which need a domain name/IP address for a networked device. The line delimited entries typically have the following form:

Domain name<>A (for address)<>IP number<>;Comment line
Example entries could be:

Paintbox1	A	123.45.67.12;	PaintBox Express - Number one
HalPost	A	123.45.67.13;	Hal Express - Post Room

Where HalPost is the domain name defined for the Quantel device 123.45.67.13 is the IP address allocated and set for the Quantel device by your network administrator (see SERVER SET-UP section). Hal Express - Post Room is a comment for the Host file.

CONFIGURING FETCH

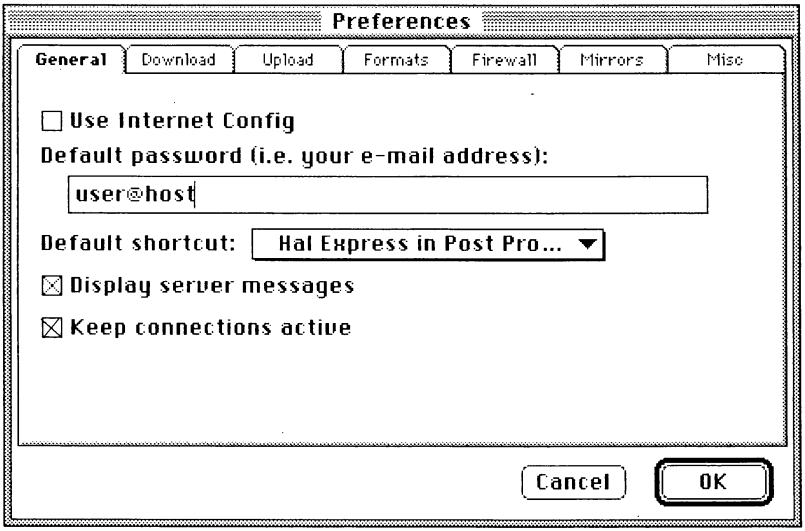
This example is based on Fetch 3.01. The following is an extract from the Fetch Help File.

Fetch is a Macintosh program for transferring files. It uses the File Transfer Protocol (FTP) and therefore allows a networked Macintosh to transfer files with any connected machine that supports FTP. Fetch requires a minimum of Mac Plus, System 4.1, and either MacTCP, Open Transport, or (at Dartmouth) KSP.

Fetch provides a graphical user interface with windows and menus to the command-line driven FTP. It makes file transfers straightforward for non-technical users or those with limited experience of networking.

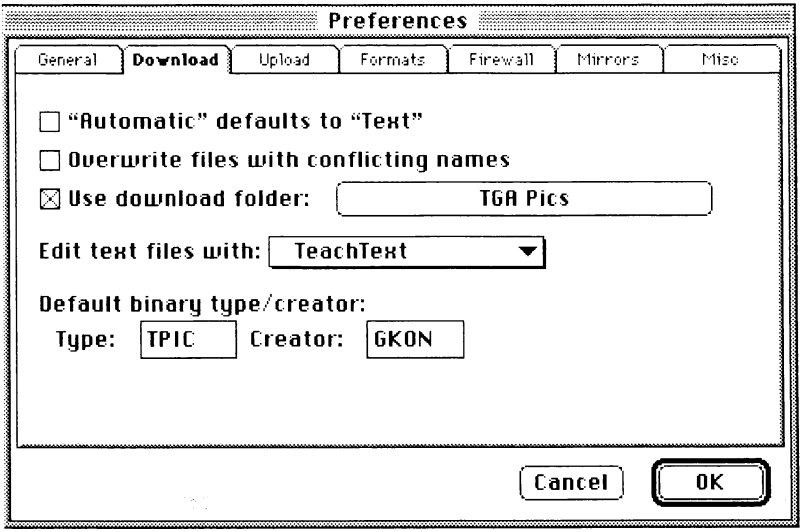
The following are screens from the Customise/Preferences menu. These should be configured as shown. It may help to have these set up in advanced by system or network managers.

General



Note 1: It is possible to select a default system eg Hal Express which always appears in the New Connection... dialogue box. Check the Fetch Help menu to see how to define a shortcut.

Download



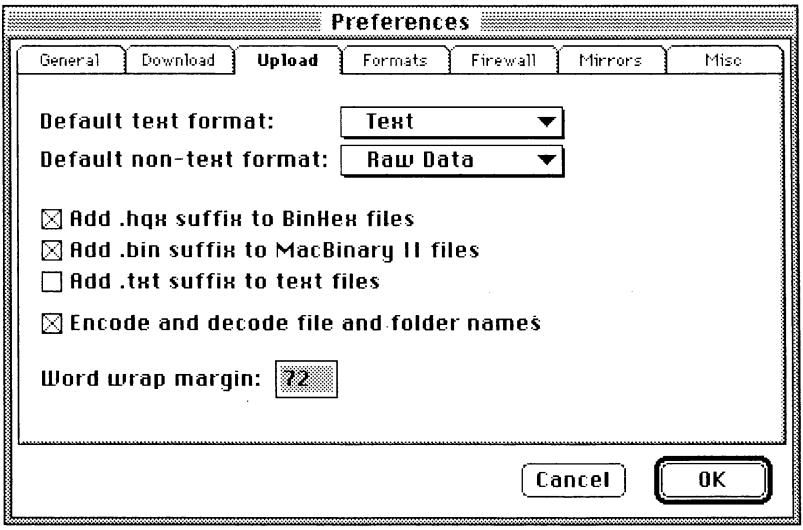
Note 1: ***Download:*** *refers to Quantel to Macintosh direction file transfers.*

Note 2: ***Download folder:*** *It is important to set a download folder. This will be used to automatically save files transferred from Quantel. If this is not set there may be interruptions in communications which result in a lost connection. This folder can be named according to normal Macintosh file limits.*

Note 3: ***Default binary type:*** *It is possible to set the file type description (eg TIFF for TIFF or TPIC for TarGA for file transfers. This information is written into the file header and used by Macintosh applications to identify the file type. It is only a label. It does not create the data within the file itself. This is done by the Quantel FTP server on the fly after the appropriate FTP switch is set eg* ***/tga, /vpb, /tiff****.*

Note 4: ***Default creator type:*** *All Macintosh applications have at least one four letter Creator name. GKON is the creator name for Graphic Converter. It is also only a label in the file header. This tells the Macintosh OS which ICON to attach to the file and which application to launch to open that file.*

Upload



Note 1: Upload refers to Macintosh to Quantel file transfers.

Formats

Note 1: Settings not applicable. Not used for Quantel connections

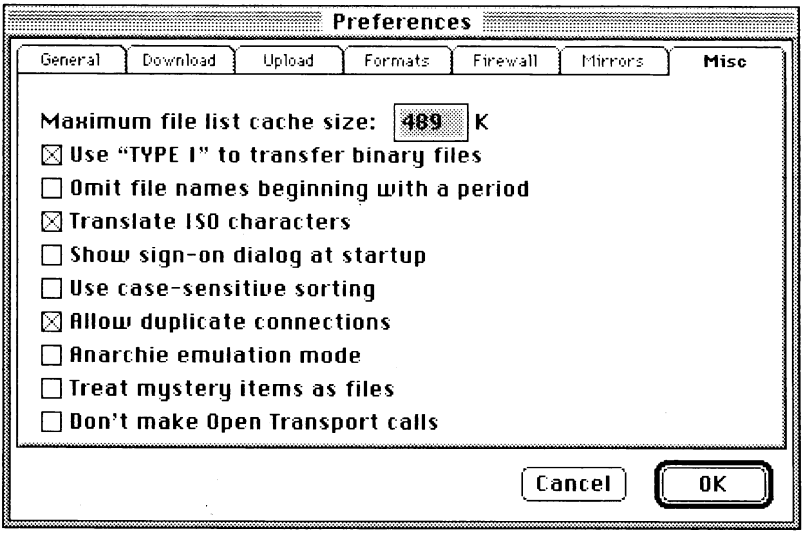
Firewall

Note 1: Settings not applicable. Not used for Quantel connections

Mirrors

Note 1: Settings not applicable. Not used for Quantel connections

Misc



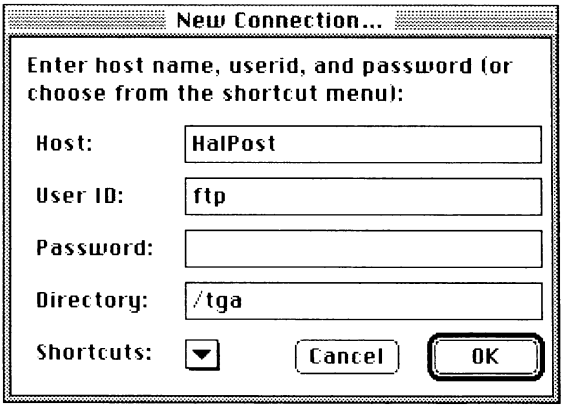
Note1: Set as shown

CONNECTING WITH FETCH

This example is based on Fetch 3.01. After launching Fetch opening a connection to a Quantel device is straightforward using the following procedure:

1 Choose New Connection...from the File menu.

Diagram: Shows screen dump of new connection dialogue...



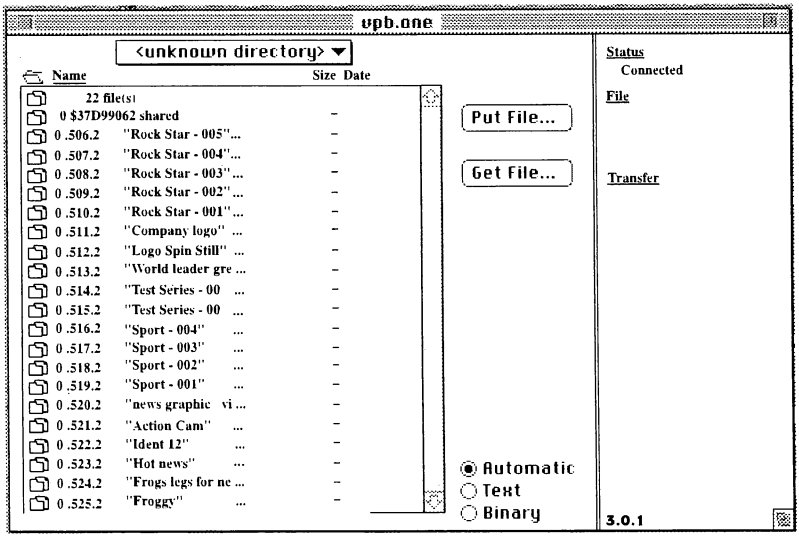
2 Enter details in the dialogue box. The details required are:

Host: This is either the IP address for the Quantel device eg 123.45.78.13. or the domain name eg HalPost. Both of these will work. Both of these should have been recorded in the Host file. These entries are case sensitive. (See SERVER SET-UP for finding out the set Quantel IP address)

User ID: Anonymous, ftp or guest can be typed here. Either will work.

Password: Nothing is required here.

Directory: This is equivalent to issuing a CD command. FTP switches can be entered here eg /vpb, /tga, /tiff, /tga. This will set the file format for vpb, Targa and TIFF respectively. Leaving this blank will default the file format to Quantel VPB. See Note 1.



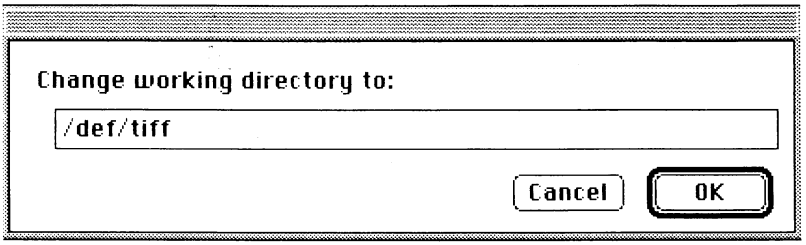
Once connection has been established a window similar to the one shown should now be visible with a directory listing of pictures on the Quantel device. The FTP switches can be changed at any time using Change Directory...in the Directories menu (see the following section Macintosh Example - Using FTP).

Note 1: These switches effectively tell the Quantel FTP Server how to treat formats output and input on the fly. If you want TIFF files to transfer from Quantel you must set the switch to ***/tiff****. If you wish to transfer TIFF files to Quantel you must also set the switch to* ***/tiff****.*

Note 2: If the window size is too small the titles listed will be truncated and may not be visible. Ensure the Fetch connection window is wide enough.

USING FTP WITH FETCH

Once the connection is established you have control of file transfers using the Quantel FTP commands and switches. For a complete list of FTP functions and their syntax see the Summary of FTP Functions section. All these commands are entered using Change Directory... from the Directories menu. Once the command has been entered a new directory listing is shown of the search results.



The following examples show some common FTP commands in use. This is not comprehensive but should enable basic use of the system. Change Directory... from the Directories menu is used to enter these commands.

☞ **Important note: The FTP switches are cumulative. This can mean that files which you know to exist do not show up on searches. Switches which have been set during this connection may be filtering out the results and therefore files you need. When in doubt use /def to return all values to default. (See Summary of FTP Functions for further information).**

SEARCHING BY TITLE

If you know a keyword from a title you may search the whole Quantel device shared disk

/title=frog	Will find all titles with frog eg Frog Legs, Froggy
/title=frog news	Will find all titles with frog AND news in the title eg Frog legs for news
/title=frog & news	Will find all titles with frog AND all titles with news eg Frog Legs and Hot News

LISTING MORE FILES FROM A SEARCH

The default number of files listed in a directory search is 20. If you think there may be more then the number listed can be changed by entering:

/max=50	Will list up to a maximum of 50 files from any given search. If the result of a search is less then the list will be less.

SEARCHING BY DATE

/date=20-jun-1997	Will list all files with this creation date.

SEARCHING FOR A PARTICULAR DATA TYPE

It is possible to find different types of file on the shared disk: pictures (pic), stencils (sten), cutouts (cut), truetype fonts (ttf) if you know a file to be one of these and/or do not know the title you can use:

/pic	Will find pictures
/sten	Will find stencils
/cut	Will find cutouts
/ttf	Will find truetype fonts

TRANSFERRING FILES TO QUANTEL

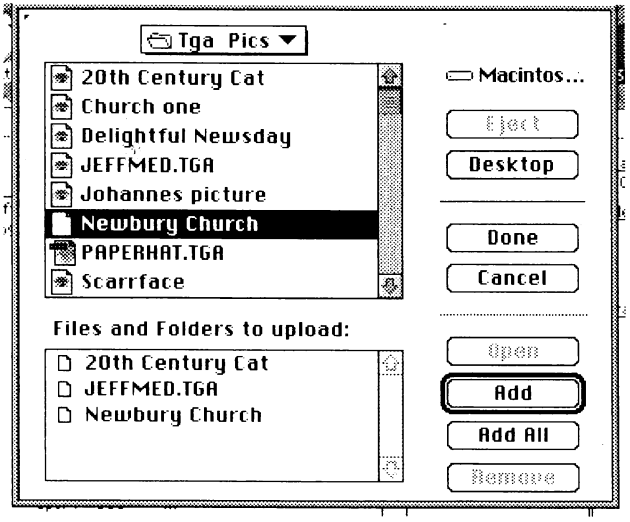
The FTP command used to transfer files to the Quantel FTP server is Put. Fetch has various ways of implementing this. The most straightforward is as follows:

☞ **Important note: Before transferring files ensure that the correct file format switch has been set for the file format you are about to transfer ie if you wish to transfer a Targa file make sure the FTP switch is set using /tga.**

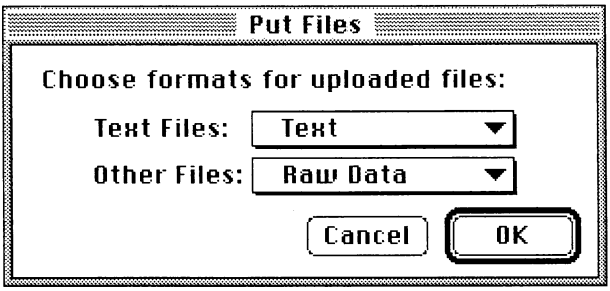
1 Click on the Put button. (Pressing ALT on the keyboard at the same time will allow multiple file selections).

2 Find the file/s you wish to transfer (using normal Macintosh file management)

3 Double-click on the file/s



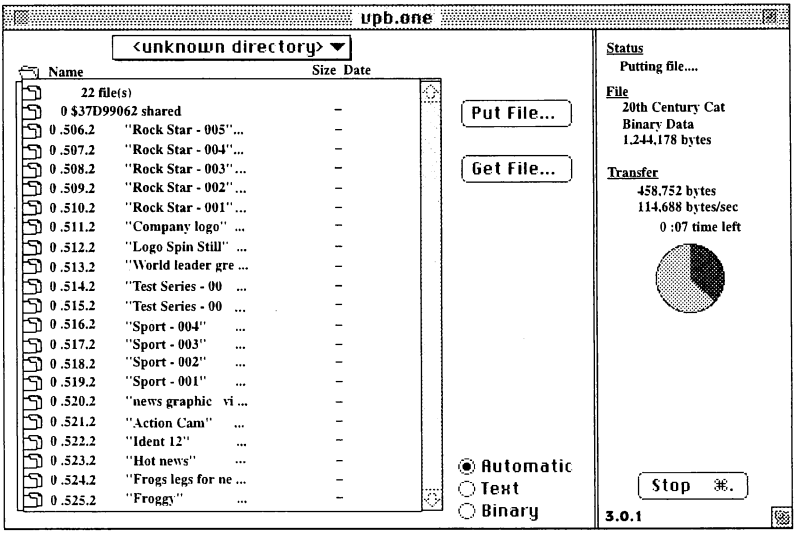
4 Click done. You will see a dialogue box showing transfer options.



5 Ensure the Format is set to Raw Data

6 Click OK

7 You will see Fetch display the transfer activity on the right of the window.



TRANSFERRING FILES FROM QUANTEL

The FTP command used to transfer files from the Quantel FTP server is Get. Fetch has various ways of implementing this. The most straightforward method follows.

*Important note: Before transferring files ensure that the correct file format switch has been set for the file format you are about to transfer ie if you wish to transfer a Targa file make sure the FTP switch is set using /**tga**.*

- Click on a file listed in the directory window. (Multiple files can be selected/deselected using the Shift key)
- Click on the Get button. You will see Fetch display the transfer activity on the right of the window. The file will be placed in the folder specified in Preferences/Download.

Note 1: Fetch also supports drag and drop. This means files can be dragged onto the directory listing window (to Put files) or dragged from the window to a visible folder on the Macintosh (to Get files).

MULTIPLE FTP COMMANDS

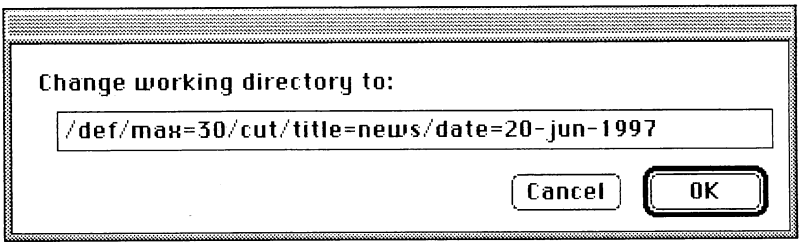
As mentioned before the use of FTP switches is cumulative. This is important to remember when configuring FTP for transfers. When in doubt use **/def** to set all switches to default. Refer to the Summary of FTP Functions for further information. The following multiple FTP example illustrates sending multiple FTP switch commands in one line entry: **/def/max=30/cut/title=news/date=20-jun-1997**

Command:	**/def**
Result:	*Reset all switches to default. Flushes all previous switches.*
Command:	/def/**max=30**
Result:	*...and limit the search results to 30 entries visible*
Command:	/def/max=30/**cut**
Result:	*...and search only for cutouts*
Command:	/def/max=30/cut/**title=news**
Result:	*...and search only for titles containing news*

Command: /def/max=30/cut/title=news/**date=20-jun-1997**

Result: ...and search only for files with this creation date.

In summary, this will search the shared disk and display up to 30 files (if they exist) which are cutouts, with news in the title, created 20 June 1997 in the directory listing window.



Note 1: Scripting can be used to automate the process for novice users.

Connecting PC

☞ **Important note: There are many different versions of PC hardware and operating systems. It is not possible to cover all these variations so this is an example of what is generally required for FTP communications between Quantel devices and PC running Windows 3.11.**

HARDWARE AND SOFTWARE

The PC needs to have:

- 100 base-TX Ethernet hardware via a card.

  Note: 10 base connections would be acceptable with an appropriate converting hub/switch. See Overview of Physical Connections

- TCP/IP software support.

  Note:This needs to be installed on Windows 3.11. Note: Windows 95 and NT have TCP/IP included as part of the OS.

- FTP software application.

  Note: This software enables FTP commands to be sent to Quantel. Software varies from commercial communications packages like PC-NFS and WS_FTP Pro to shareware applications. Applications like these may also provide a graphical user interface to the normal command-line structure required by FTP. In addition, you may open an FTP shell to send command-line FTP to the Quantel server.

TCP/IP SET-UP

Once systems are physically cabled together and TCP/IP software is installed for use the PC needs to be given an IP address. This identifies the device on the TCP/IP network. If you have a large or administered network your network manager may already have done this. If not, you need to refer to your PC software documentation.

You also need to tell your PC about the devices which you wish to connect to. Each Quantel device needs to be set up with a unique IP address. The Quantel procedure for this is defined in the SERVER SET-UP section of this document.

This address needs to be entered into the HOSTS file of the PC. This is a simple text file called Hosts. It is a list of all the devices which you wish the PC to have access to on TCP/IP. This typically resides in the Windows directory. The HOSTS file is accessed by applications (like WS_FTP Pro) which need a domain name/IP address for a networked device.

The file contains the mappings of IP addresses to host names. The IP address and the host name should be separated by a least one space. Comments can be added following the # symbol. Each entry should be on a separate line and have the following form.

IP number<>Domain name<># Comment line

Example entries could be:

123.45.78.12	Paintbox1	#PaintBox Express - Number one
123.45.78.13	HalPost	#Hal Express - Post Room

Where HalPost is the domain name defined for the Quantel device. 123.45.78.13 is the IP address allocated and set for the Quantel device by your network administrator (see SERVER SET-UP section). Hal Express - Post Room is a comment for the Host file.

CONFIGURING WS_FTP PRO

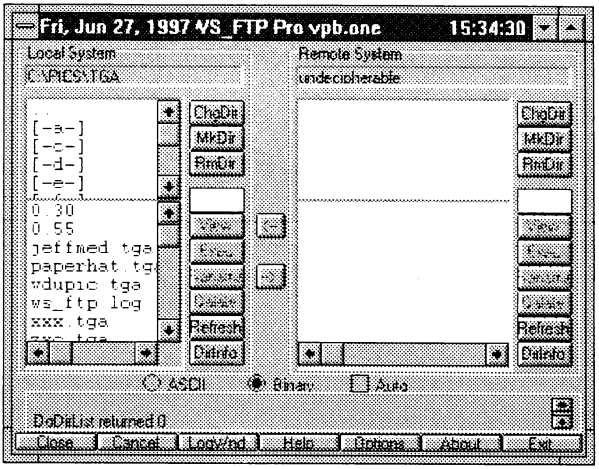
This example is based on WS_FTP Pro. WS_FTP Pro provides a graphical user interface with windows and menus to the command-line driven FTP. It makes file transfers straightforward for non-technical users or those with limited experience of networking.

Use the following procedure for configuring WS_FTP Pro:

1

Launch WS_FTP Pro. The following screen may be visible.

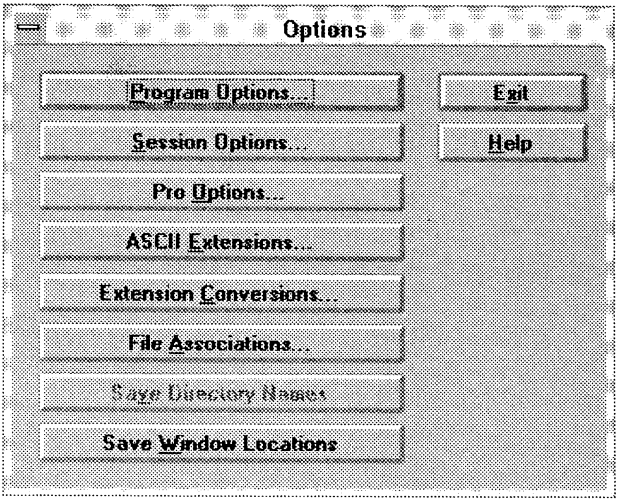
Note: If the Session Profiles screen is open click cancel for now.



2

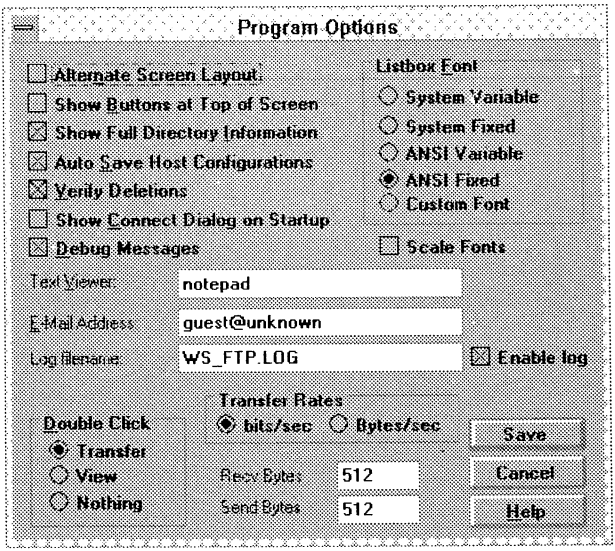
Click on the OPTIONS button

Note: The options which need to be configured are: Program and Session. These are illustrated below.



Program Options

- Choose Program Options and set as shown
- Click Save to exit.

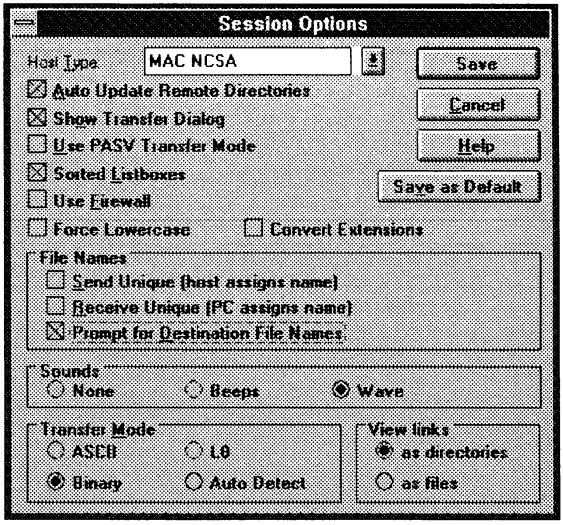


Note 1: ***Double-Click:*** Makes it possible to transfer to and from Quantel by double-clicking the files.

Note 2: ***Enable Log:*** Records transfer information over the period of connection.

Session Options

- Choose Session Options and set as shown.



- Click Save as Default.
- Exit from Options

Note 1: ***Host Type:*** There are many different Host definitions to cover the multitude of FTP servers. Many of these will work with Quantel. Choose MAC NCSA as default. This will be used as default for connections to any Quantel device.

Note 2: ***Transfer Mode:*** Set to binary. All communications with the Quantel FTP server need to be in binary mode.

CONNECTING WITH WS_FTP PRO

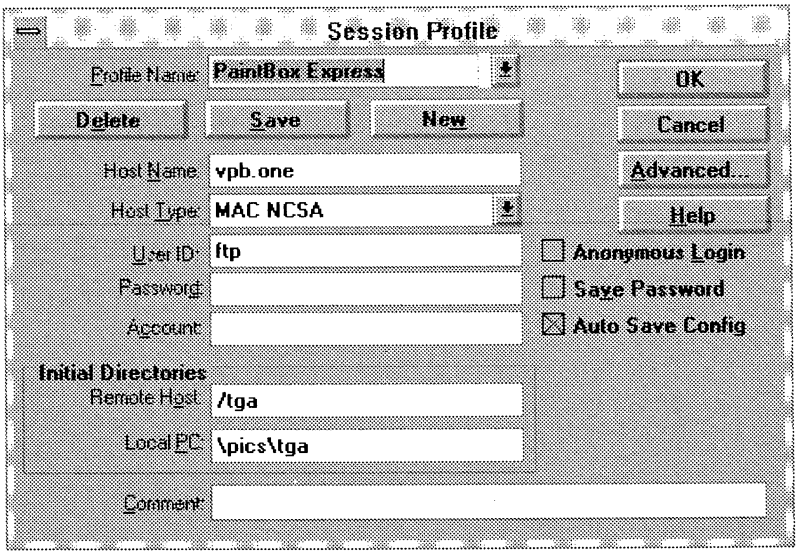
Once all the options have been configured connection is simple:

1 Click on the Connect button. Session Profiles is displayed.

2 You can create profiles for connection to different machines. These can be saved using the Session Profiles dialogue box. If you have multiple Quantel devices each one could have their own profile. Follow the notes for detailed settings.

3 Choose a profile to connect or enter new details in the boxes.

4 Click OK



Note 1: ***Profile Name:*** This can be any useful label for the connection - typically the device name.

Note 2: ***Host Name:*** This is either the IP address for the Quantel device eg 123.45.67.89. or the domain name eg HalPost. Both of these will work. Both of these should have been recorded in the Host file. These entries are case sensitive. (See SERVER SET-UP for finding out the set Quantel IP address)

Note 3: ***Host Type:*** The default has already been set (see Session Options) but it can be changed here.

Note 4: ***User ID:*** Anonymous, or ftp or guest can be typed here. Either will work.

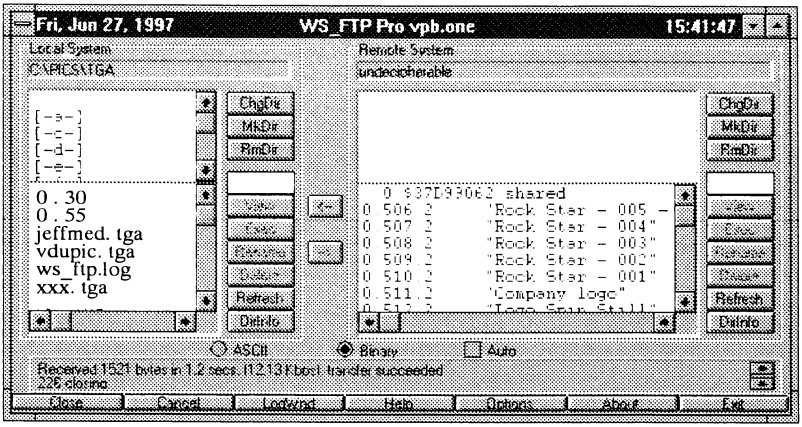
Note 5: ***Password:*** Nothing is required here.

Note 6: ***Initial Directory:*** FTP switches can be entered here **eg /tga, /tiff, /vpb, /ttf.** This will set the file format for transfers.
*These switches effectively tell the Quantel FTP Server how to treat formats output and input on the fly. If you want TIFF files to transfer from Quantel you must set the switch to **/tiff**. If you wish to transfer TIFF files to Quantel you must also set the switch to **/tiff**.*

Note 7: ***Local PC:*** This specifies the directory for saving files transferred *from* Quantel. Choose an appropriate directory.

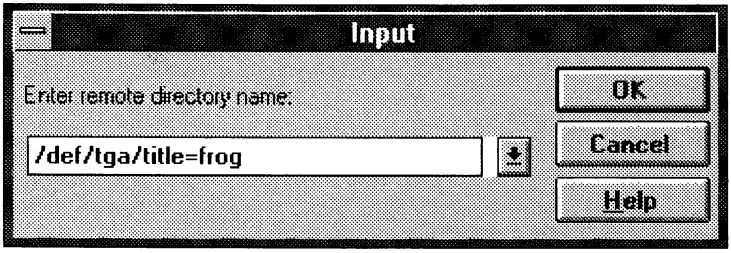
At this point the window (right) will show a default listing of 20 files.

See 'LISTING MORE FILES FROM A SEARCH' P1-52



USING FTP WITH WS_FTP PRO

Once the connection is established you have control of file transfers using the Quantel FTP commands and switches. For a complete list of FTP functions and their syntax see the Summary of FTP Functions section. The FTP switches can be changed at any time using the ChgDir button. Once the command has been entered a new directory listing is shown of the search results (right window).



☞ **Important note: The FTP switches are cumulative. This can mean that files which you know to exist do not show up on searches. Switches which have been set during this connection may be filtering out the results and therefore files you need. When in doubt use /def to return all values to default. (See Summary of FTP Functions for further information).**

The following examples show some common FTP commands in use. This is not comprehensive but should enable basic use of the system. The ChgDir button is used to enter these.

SEARCHING BY TITLE

If you know a keyword from a title you may search the whole Quantel device shared disk

/title=frog	Will find all titles with frog eg Frog Legs, Froggy
/title=frog news	Will find all titles with frog AND news in the title Frog legs for news
/title=frog & news	Will find all titles with frog AND all titles with news eg Frog Legs and Hot News

LISTING MORE FILES FROM A SEARCH

The default number of files listed in a directory search is 20. If you think there may be more then the number listed can be changed by entering:

/max=50	Will list up to a maximum of 50 files from any given search. If the result of a search is less then the list will be less.

SEARCHING BY DATE

/date=20-jun-1997	Will list all files with this creation date.

SEARCHING FOR A PARTICULAR DATA TYPE

It is possible to find different types of file on the shared disk: pictures (pic), stencils (sten), cutouts (cut), truetype fonts (ttf). If you know a file to be one of these and/or do not know the title you can use:

/pic	Will find pictures
/sten	Will find stencils
/cut	Will find cutouts
/ttf	will find truetype fonts

TRANSFERRING FILES *TO* QUANTEL

Once a connection has been established the FTP command used to transfer files to the Quantel FTP server is Put. WS_FTP has various ways of implementing this. If you have set the Program options correctly then the most straightforward way is as follows:

☞ **Important note: Before transferring files ensure that the correct file format switch has been set for the file format you are about to transfer ie if you wish to transfer a Targa file make sure the FTP switch is set using /tga. Use the ChgDir button to do this.**

- Find the PC file you wish to transfer from the left window (using normal PC directory access).
- If it is a single file then double-click to activate the file transfer. This instructs WS_FTP to send a Put command to the Quantel server. The transfer will happen immediately. Multiple files can be selected using normal PC key commands eg control and shift. In this case click on the right arrow icon to execute transfers.

  If you have set a receive directory for your PC (see Session Profile) the file will be placed there. If not you will be asked to specify a directory.

TRANSFERRING FILES *FROM* QUANTEL

Once a connection has been established the FTP command used to transfer files from the Quantel FTP server is Get. If you have set the Program options correctly then the most straightforward way is as follows:

Important note:
Before transferring files ensure that the correct file format switch has been set for the file format you are about to transfer ie if you wish to transfer a Targa file make sure the FTP switch is set using */tga. Use the ChgDir button to do this.* Execute a search for the file/s you wish to transfer.

If it is a single file then double-click to activate the file transfer. This instructs WS_FTP to send a Put command to the Quantel server. The transfer will happen immediately. Multiple files can be selected using normal PC key commands eg control and shift. In this case click on the left arrow icon to execute transfers.

Note 1: WS_FTP Pro also supports drag and drop. This means files can be dragged onto the directory listing window (to Put files) or dragged from the window to a visible directory on the PC (to Get files). This can be enabled in the Options dialogue Pro Options...button.

MULTIPLE FTP COMMANDS

As mentioned before the use of FTP switches is cumulative. This is important to remember when configuring FTP for transfers. When in doubt use **/def** to set all switches to default. Refer to the Summary of FTP Functions for further information. The following multiple FTP example illustrates sending multiple FTP switch commands: **/def/max=30/cut/title=news/date=20-jun-1997**

Command:	**/def**
Result:	*Reset all switches to default. Flushes all previous switches.*
Command:	/def/**max=30**
Result:	*...and limit the search results to 30 entries visible*
Command:	/def/max=30/**cut**
Result:	*...and search only for cutouts*
Command:	/def/max=30/cut/**title=news**
Result:	*...and search only for titles containing news*
Command:	/def/max=30/cut/title=news/**date=20-jun-1997**
Result:	*...and search only for files with this creation date.*

In summary, this will search the shared disk and display up to 30 files (if they exist) which are cutouts, with news in the title, created 20 June 1997 in the directory listing window.

Connecting Unix

Important note: There are many different versions of Unix hardware and operating system. It is not possible to cover all these variations so this is an example of what is generally required for FTP communications between Quantel devices and Unix platforms.

HARDWARE AND SOFTWARE

The Unix platform needs to have:

- 100 base-TX Ethernet hardware via a card.

  Note: 10 base connections would be acceptable with an appropriate hub. See Overview of Physical Connections

- TCP/IP software support.

  Note: TCP/IP is native to Unix systems.

- FTP software application.

  Note: This software enables FTP commands to be sent to Quantel. FTP functionality is typically via a Unix shell running the FTP application.

TCP/IP SET-UP

Once systems are physically cabled together the Unix system need TCP/IP to be configured. Refer to your Unix documentation/system administrator to do this. During this process the device should be given its own IP address. This identifies the device on the TCP/IP network. You also need to tell your Unix system about the devices which you wish to connect to. Each Quantel device needs to be set up with a unique IP address. The Quantel procedure for this is defined in the SERVER SET-UP section of this document.

If you wish to use host names as an easier way to remember what you are connecting to then the IP address needs to be entered into the HOSTS file of the Unix platform. This is a simple text file. It is a handy look-up table which lists all the devices which you wish the Unix platform to have access to on TCP/IP. It holds the network addresses and symbolic names. This typically resides in /etc/hosts.
It typically takes this form:

# IPAddress	Host_name
123.45.78.12	paintbox
123.45.78.15	editbox

Second and subsequent host-names are aliases, the first would be returned in a who is 123.45.78.15 request. The file would also have an entry for loop-back testing:

127.0.0.0 localhost

FTP USING COMMAND-LINE

This example is based on command-line FTP. This is typical in Unix but is also included here as an example to contrast with the GUI-FTP clients used on Mac and PC.

Connecting via a Unix shell

There are two basic ways to open connections via FTP under Unix. All of these follow after opening a Unix shell window.

1 >ftp Host name or IP address

This switches control to FTP commands and establishes a connection in one go.
For example: >ftp Paintbox
or if the host name is not known the IP address of the Quantel device can be used.

For example:>ftp 123.45.78.12

2 Or typing FTP will switch functions to FTP. See following example.

>ftp
It is then necessary to open a connection to a host (Quantel TP Server)
>ftp open hostname or IPaddress.

☞ **Important note: Before starting the FTP connection it is worth setting the present working directory on the local Unix machine (client). This is useful because this directory will be used to read and write file data for default transfers eg cd /disk1/pictures. Files transferred from Quantel will be written here and files for transferring to Quantel will be read from here unless specified otherwise.**

Once the connection is established you have control of file transfers using the Quantel FTP commands and switches. For a complete list of FTP functions and their syntax see the Summary of FTP Functions section. The FTP switches can be changed at any time using the cd FTP command.

☞ **Important note: Quantel uses the cd command with switches to set or control the function of the Quantel FTP server. Many of the FTP switches are cumulative. This can mean that files which you know to exist do not show up on searches. Switches which have been set during this connection may be filtering out the results and therefore files you need. When in doubt use /def to return all values to default. (See Summary of FTP Functions for further information).**

The following examples show some common FTP commands in use. This is not comprehensive but should enable basic use of the system. The examples are structured in two columns. The first column show what you should actually see. The second shows any comments on the process. Type in bold shows commands and switches entered by the user.

CONNECTING

After using one of the methods described earlier you should see:

```
ftp> open 123.45.78.12
Connected to 123.45.78.12
220 FTP server ready
```

Open FTP connection to particular host

```
Name (123.45.78.12:paintbox)
230 User name accepted.
```

: **ftp**
Type FTP or anonymous at prompt

```
ftp> pwd
230  0   $869F42D3   shared
```

Check the disk used (pwd)
Shows the logical disk connection.

```
ftp> dir
200 OK.
150 data port open.
```

Show a directory listing command
Shows a default list of 20 files.

```
  0    $869F42D3    shared
```

This line shows the logical disk as for pwd above

```
0.13.2  FRAME STORE - 025"
```

This lists files in the form FID FILENAME.

```
0.14.3    ian mac
0.35.3    tng do not delete
0.36.3    BACKGROUND REP SCOT
0.37.3    TRUATH CEOL - 002"
....more files
```

There are 20 files listed as default here. If there are more they can be accessed using the /max switch or other directory commands like /next

```
        718 file(s)
```

This is the actual number of files found

```
226 closing.
1522 bytes received in 1.5 seconds
(1 Kbytes/s)
```

SEARCHING BY TITLE

The previous example showed 718 files available on the disk. If you know a keyword from a title you may filter this list by using keywords.

/title=frog	Will find all titles with frog eg Frog Legs, Froggy
/title=frog news	Will find all titles with frog AND news in the title Frog legs for news
/title=frog & news	Will find all titles with frog AND all titles with news eg Frog Legs and Hot News

An actual example would be:

```
ftp> cd /title=frog          Specify the title keywords
257 command successful.

ftp> dir                     List the files
200 OK.
150 data port open.
  0 $869F42D3 shared

0.48.2       Frog Legs
0.49.2       Froggy
0.134.1      Frog legs for news
     3 file(s)
226 closing.
781 bytes received in
1.2 seconds(0.65 Kbytes/s)        Three files found with
                                  FROG keyword
```

LISTING MORE FILES FROM A SEARCH

The previous example showed 3 files found. The default number of files listed in a directory search is 20 (if they exist). If you think there may be more then the number listed can be changed by entering:

/max=50 Will list up to a maximum of 50 files from any given search. If the result of a search is less then the list will be less.

```
ftp> cd /def/max=50
257 command successful.          Set the listing of a search to
                                 be 50

ftp> dir                         List files

200 OK.
150 data port open.
  0 $869F42D3 shared
0.13.2       Picture-001"
0.14.3       Picture-002"
0.35.3       Picture-003"
```

```
0.36.3       Picture-004"
0.37.3       Picture-005"
          etc.....
0.39.2       Picture-050"
          79 file(s)
226 closing.
3742 bytes received in
2.5 seconds
(1.5 Kbytes/s)
```

Note that 79 files were found. Only 50 will be listed unless /max or other switches are used

SEARCHING BY DATE

/date=20-jun-1997 Will list all files with this creation date.

For example:

```
ftp> cd /date=today
257 command successful.
```

Search for files made today

```
ftp> dir
```

List files

```
200 OK.
150 data port open.
  0 $869F42D3 shared
0.13.2       Picture-001"
0.35.3       Picture-003"
0.36.3        Frog legs
0.37.3       Picture-005"
         4 file(s)
226 closing.
3742 bytes received in 2.5 seconds (1.5 Kbytes/s)
```

QUICK START - PRACTICAL EXAMPLES

SEARCHING FOR A PARTICULAR DATA TYPE

It is possible to find three different types of file on the shared disk: pictures (pic), stencils (sten), cutouts (cut). You can therefore use this switch as a filter for searches.

/pic	Will find pictures
/sten	Will find stencils
/cut	Will find cutouts
/ttf	Will find truetype fonts

For example:

```
ftp> cd /cut
257 command successful.
```

Search for cutouts

```
ftp> dir
```

List files

```
200 OK.
150 data port open.
  0 $869F42D3 shared
0.13.2              News
Logo-001"
0.35.3      Picture-003"
0.36.3      Frog legs
0.37.3      Picture-005"
         4 file(s)
226 closing.
3742 bytes received in 2.5
seconds
(1.5 Kbytes/s)
```

TRANSFERRING FILES *TO* QUANTEL

Once a connection has been established the FTP command used to transfer files to the Quantel FTP server is Put. It helps to have already set your pwd (present working directory) on your local (client) machine before executing file transfers. For example:

```
> cd /disk1/pictures
```

This directory will be used for all puts and gets until it is changed. Before executing file transfers it is also important to set transfers to binary as follows:

```
ftp> bin
```

The Put process looks like this.

```
ftp> put PictureName.tiff /tiff
200 OK.
150 ready to take file.
226 closing. fid 0.1060.1
local: flag90 remote: /tiff
91054208 bytes sent in 5.6 seconds (1.8e+02
Kbytes/s)
```

Note: The file name and the /tiff switch. /tiff tells the Quantel FTP server which file format is being sent.

For a targa file it would look like this:

```
ftp> put PictureName.tga /tga
```

If you wish to transfer a Quantel VPB file then this is a default format. Use **cd /def** to set all switches to default.

TRANSFERRING FILES *FROM* QUANTEL

Once a connection has been established the FTP command used to transfer files from the Quantel FTP server is Get. It helps to have already set your pwd (present working directory) on your local (client) machine before executing file transfers. For example:

```
> cd /disk1/pictures
```

This directory will be used for all puts and gets until it is changed. Once a search has been executed and the files listed then the FID is known. This is used to FTP the file from the Quantel FTP server to the local (client) machine.

```
ftp> dir                          List files from a
200 OK.                           search
150 data port open.
  0 $869F42D3 shared
```

```
0.13.2              News
Logo-001"        0.35.3
Picture-003"
0.36.3      Frog legs
0.37.3      Picture-005"
4 file(s)
226 closing.
3742 bytes received in
2.5    seconds     (1.5
Kbytes/s)
```

Note the FID numbers.

Before executing file transfers it is also important to set transfers to binary as follows:

```
ftp> bin
```

The Get process for targa looks like this.

```
ftp> get 0.13.2/tga NewFileName.tga
200 OK.
150 ready to send file.
226 closing.
```

Note the use of the FID. This is from file News Logo-001. At this point it is possible to give the new file a name.

```
local: NewFileName remote:
0.13.2/tga 1055781 bytes
received in 8.6 seconds
(1.2e+02 Kbytes/s)
```

The remote host is the Quantel FTP server

See page 1 - 24 for use of the **mget** command.

It is also possible to transfer header and browse information from the Quantel VPB file structure held on the Quantel machine. The process is exactly the same and example are shown below.

```
ftp> get 0.13.2/header NewFileName.text
200 OK.
150 ready to send file.
226 closing.
local: NewFileName.text remote: 0.13.2/header
179 bytes received in 0.024 seconds (7.2 Kbytes/s)
```

The contents of this header information is text based and looks like this:

```
/pic
/fid = 0.13.2
/title = News Logo-001
/vol = 0
/own = NEWSORG
/create_date = 16:0:28 14 Feb 1997
/update_date = 9:30:32 4 Mar 1997
/xlen = 720
/ylen = 488
/format = 0
/descr = "NEWS LOGO"
```

The browse component can be retrieved using **get** in either Tiff, Targa or VPB format. The process is similar to the previous.

```
ftp> get 0.13.2/browse NewFileName.Browse
200 OK.
150 ready to send file.
226 closing.
local: NewFileName.Browse remote: 0.48.2/browse
52773 bytes received in 3 seconds (17 Kbytes/s)
```

MULTIPLE FTP COMMANDS

As mentioned before the use of FTP switches is cumulative. This is important to remember when configuring FTP for transfers. When in doubt use **cd /def** to set all switches to default. Refer to the Summary of FTP Functions for further information. The following multiple FTP example illustrates sending multiple FTP switch commands. The full command could look like this:

```
ftp>cd /def/max=30/cut/title=news/date=20-jun-1997
```

Below each part of the cd is explained

`ftp> cd /def`
Reset all switches to default. Flushes all previous switches.

`ftp> cd /def/max=30`
..and limit the search results to 30 entries visible

`ftp> cd /def/max=30/cut`
...and search only for cutouts

`ftp> cd /def/max=30/cut/title=news`
...and search only for titles containing news

`ftp>cd /def/max=30/cut/title=news/date=20-jun-1997`
...and search only for files with this creation date.

In summary, this will search the shared disk and display up to 30 files (if they exist) which are cutouts, with news in the title, created 20 June 1997. Use of /dir will show the results of this search.

CLOSING A SESSION

Closing an FTP session is straightforward. For example:

```
ftp> close
221 Goodbye.
```

APPENDICES

TrueType Fonts

With the introduction of Picturenet Plus software V1-15 (and later), the Quantel Open interface has been extended to allow the import of TrueType fonts to Quantel systems using FTP & TCP/IP. This means a customer wanting a special font need not wait for Quantel to process the font. They can source and license the font from font vendors and transfer it to the system themselves. Customers can also create and modify fonts with their own special characters, using software like Fontographer, then use these fonts on Quantel systems.

Fonts added to Quantel systems MUST contain Unicode mapping tables, in order to be used successfully inside Quantel systems. These must conform to the TrueType (TTF) specification. This covers fonts for Windows 3.X, Windows 95, 9X, Windows NT. Quantel does not support TrueType Collection Fonts (TTC fonts). Due to the way that Macintosh TrueType font data is stored they must be converted to PC TrueType before transferring to Quantel (see the Contacts section for more information on applications which can help to do this).

TrueType fonts are treated similarly to other file formats for transfer purposes. Extra functionality has been added on the Quantel FTP Server to extract the font name from the font data. For more information on this and other technical information see following sections and the FAQ Appendix.

☞ **Important Legal Note: Where it is technically possible to import TrueType format fonts into Quantel systems it is the Quantel customer's responsibility to ensure that a valid license is obtained and maintained to use those fonts on the Quantel systems. Please refer to "Standard Terms and Conditions of Sale"**

MAIN REQUIREMENTS FOR TRUETYPE FONTS

There are four main requirements to take advantage of TrueType fonts on Quantel systems. They are:

1 **Quantel Picturenet Plus with TCP/IP**
Version 1.15 (or later). This provides the transfer mechanism (as for pictures etc)

2 **Quantel System s/w (eg Paintbox 2.05)**
Provides the ability to load and work with TrueType fonts as for vector fonts

3 **Third-party system (Mac/Unix/PC)**
These should be configured for TCP/IP and FTP. Fonts are treated like other transferred data .

4 **TrueType Fonts**
These should be PC TrueType fonts (with Unicode mapping) designed for use on Windows 3.X, Windows 95, 9X, and Windows NT. If in doubt customers should refer to their font supplier to ensure the fonts conform to this specification.

Note:

Only one machine is required for transfers. Once transferred the fonts can be physically copied to other Quantel machines and used with the appropriate s/w release.

WHICH QUANTEL MACHINES HAVE ACCESS TO TRUETYPE FONTS?

TrueType is currently supported by the following software version within each system. TrueType is planned for more machines than those listed below. Please refer to your Quantel sales representative for more information.

Support for TrueType fonts is currently available on the following machines :

System	S/w Version
Paintbox	2.05
Hal	5.07
Henry	5.83

HOW DOES IT WORK?

Once systems are connected with TCP/IP fonts are treated like any other data currently supported. The procedure below outlines the basic process. Font data is transferred via FTP and TCP/IP to Quantel machines. The font is transferred to the Quantel SHARED disk. Once there the fonts can be loaded and used with all the available Quantel text functions.

Transfer Process

- Establish an FTP connection to Quantel device
- Issue a cd /ttf command
- This will refresh the directory listing to show any existing TrueType fonts on the Shared disk
- Use Put/Upload/Send and select a TrueType font
  The actual command and process depends on FTP application (refer to the Basic FTP commands section for more detail) The Font name is automatically extracted on-the-fly
- Search for TEXT FONT from Quantel library
- Load font
- Use text functions as normal

Note1:
There is no browse capability with TrueType fonts in current software.

Note2:
Only one machine is required for transfers. Once transferred the fonts can be copied to other Quantel machines and used with the appropriate s/w release.

TRUETYPE FORMAT

TrueType fonts support Unicode. Unicode allows fonts to contain more than 256 characters. This is essential for Japanese, Korean etc. Fonts added to Quantel systems MUST contain Unicode mapping tables, in order to be used successfully inside Quantel systems. These are often referred to as Windows 95 format fonts, and must conform to the TrueType (TTF) specification. Quantel does not support TrueType Collection Fonts (TTC fonts).

COPYING AND COPY PROTECTION FOR FONTS

A TrueType font copied onto a Quantel system by FTP is stored within the Quantel filing system. Although the name of the font outside Quantel environment is usually of the form Tt0232_.ttf the copying procedure will extract the name of the font from the file data, and the name of the file in the Quantel filing system will be the more easily recognised font name, such as Cooper Black Italic Headline BT (TrueType).

Once a font has been copied onto a Quantel system, it can be copied using the normal library copy mechanism, for example, to back it up to Magneto-optical disk. It can also be extracted by FTP as a TrueType font.

TrueType fonts supplied by Quantel will normally be protected by a password. These fonts can be copied for backup purposes by Quantel systems, but are restricted to run on the machine for which they are licensed. These fonts cannot be extracted by FTP.

AUXILIARY TEXT INPUT

Where character sets contain more characters than can be mapped onto a QWERTY keyboard (such as Japanese or Korean), or where special rules apply to the composition of characters (such as various Indian languages), it is necessary to provide an alternative mechanism for inputting text in these languages.

Paintbox, Hal and Henry all now allow input of text as a string of Unicode characters via an RS232 serial port.

Both Quantel Japan and Quantel Korea have commissioned special software to run on a laptop PC which allow Japanese and Korean to be typed at the PC using an input mechanism well known to Japanese and Koreans, and to be sent to the Quantel system via the RS232 (auxiliary serial) input.

Important Legal Note: Where customers bring in fonts of their own choice, whether modified, or unmodified, the laws of copyright hold true. It is the customers responsibility to ensure that they do not infringe copyright law in adding fonts to, or using such fonts on Quantel systems.

This auxiliary input mechanism is the way in which text in other languages with many characters, or complicated construction rules will be entered into Quantel systems. A cable exists for connecting such PCs to Quantel systems, (Quantel part number 2090-51-016), and a specification of the input format required also exists as a separate document. Bespoke software for auxiliary text input is NOT supported by Quantel R & D.

☞ **Important Legal Note: Where it is technically possible to import TrueType format fonts into Quantel systems it is the Quantel customer's responsibility to ensure that a valid license is obtained and maintained to use those fonts on the Quantel systems. Please refer to "Standard Terms and Conditions of Sale"**

Frequently Asked Questions - FAQ

These are the most commonly asked questions about connecting to Quantel via TCP/IP.

WHAT IS FTP?

File Transfer Protocol (FTP) enables a file on system to be copied to another. The user uses an FTP client program to gain access to an FTP server which runs on the machine they need access to. Once a connection has been established, FTP enables you to copy one or more files to your machine (FTP client). The term transfer is used because the transfer is in fact a copy. The original remains unaffected. FTP is widely used on Internet, and many LANs and WANs.

WHAT IS TCP/IP?

Transmission Control Protocol/Internet Protocol (TCP/IP) is a suite of protocols for networking. TCP deals with the Transport layer. IP the Network (addressing) layer. It is based on the concept of servers and clients. A client is defined as the device which initiates communications and the Server as the device which responds.

WHY FTP?

FTP is one of the layers which can run on top of TCP/IP. There are many others eg Telnet, SMTP, NFS. Each of these may be considered as user applications with their own design and functionality. SMTP (Simple Mail Transfer Protocol) is designed for e-mail communications. NFS or Network File System is a set of protocols developed by Sun Microsystems. It was designed primarily to allow Unix machines mutual transparent access to each others directories.

FTP is designed primarily for file transfers on TCP/IP. Users have flexible access when they want without affecting performance of the Quantel host machine.

WHAT HAS QUANTEL IMPLEMENTED FOR FTP?

File Transfer Protocol is a standard with 50+ FTP commands available. Not all of these are implemented by all developers. Many of these are not relevant to file transfers (eg Remotehelp) only to connections between computers.

Quantel has implemented the most relevant core set of these commands enhanced by FTP switches. These enable flexible file background transfers in and out of Quantel systems. File labelling, handling and browsing are all supported by these commands. These commands are documented in this booklet.

Contrary to popular belief there is no industry-typical FTP server implementation. An FTP application like WS_FTP Pro for example lists *over 50* different host types.

WHAT IS AN FTP SWITCH?

Quantel uses FTP switches to extend the command set of FTP for specific use accessing files on Quantel systems. The switch (or qualifier) enables detailed searches to be executed of the Quantel shared disk. In addition, there are switches which control the type of data which is imported and exported. These are: **/tiff** for TIFF files. **/tga** for Targa files./**vpb** for Quantel VPB format. /**browse** to allow applications to access the browse part of a Quantel file. /**header** to allow applications access the file descriptors of a Quantel file.

These last two switches are particularly useful to 3rd-party developers who wish to build more sophisticated browse or FTP applications.

CAN I USE MY QUANTEL DEVICE TO GRAB FILES FROM A THIRD PARTY PLATFORM?

No. Quantels FTP design is Client-Server based. The Quantel systems operate as servers receiving/sending data on request from 3rd-party clients. See Server/Client Architecture Page 1-6

A peer-to-peer design would reduce operations for library management on Quantel to the lowest common denominator and ie. tie up the front end with low-level networking tasks, this is undesirable.

WHAT IS QUANTEL VPB?

This is Quantel's native file format. It is available to developers as an OPEN specification. (See Quantel Doc. No 2066-58-008).

Quantel VPB is a perfect format for universal use as it has the following features:

- **i** Resolution independence - For Graphic Paintbox 2 and video-based products
- **ii** Broadcast and Print ready - Supports Y, Cb, Cr and RGB, CMYK colour spaces and all known aspect ratios.
- **iii** Native to all Quantel products and fully ITU-R 601 compliant
- **iv** Compact data storage - typically 3/4 of similar files if stored in Y, Cb, Cr.
- **v** Full compliment of file descriptors: Title, category, description etc. Makes all material Quantel ready.

CAN I USE QUANTEL VPB AS A FORMAT FOR TRANSFERS?

Yes. The FTP server outputs Quantel VPB as default. Quantel VPB can also be sent to Quantel. This requires third-party application support. More and more developers are writing support for VPB. Even if files are stored in other formats there are file converter applications becoming available to write VPB.

If you use applications which do not support Quantel VPB please inform the developer about the freely available specification.

See the Contacts section for relevant information.

CAN I SEND AND RECEIVE MULTIPLE FILES?

Yes. MPUT and MGET FTP commands are supported by Quantels FTP server. These can be entered via command-line in an FTP shell application or specific applications may provide a graphical user interface for the same result.

CAN I TRANSFER FILES LARGER THAN PAL/NTSC FRAME STORE?

Yes. It is possible to transfer files larger than this store and load using normal library functions depending on the specific machine. Graphic Paintbox 2 for example routinely works with files which are many tens of megabytes in size.

FILES ARRIVE WITH NO-TITLE

There are many different file format variations. Many developers write convenience revisions to adapt the file format to their own uses. This can result in differences in conformance to a file format specification. The Quantel FTP server handles files automatically in one of three ways:

1. If the file has a title embedded in it then this will be used.
2. If there is no embedded title and the STOR command contains a filename eg. PICI.tga this will be used.
3. If neither of the above is true then it will substitute the default title No title - tga or No title - tiff respectively.

Advice: *Use a product which writes the correct format. Use a file converter to convert to the correct format. Retitle on the Quantel system.*

CIRCLES LOOK SQUASHED

The aspect ratio is incorrect.

Computer systems typically store images in 1:1 square pixel aspect ratio. Broadcast and video standards demand aspect ratio support appropriate to Pal or NTSC for example. Quantel does this automatically if the file is flagged correctly or the file format is Quantel VPB.

Advice: *Use cd/aspect switch to force aspect ratio on input. Re-aspect files before sending. Or use Quantel VPB. Or correct on Quantel system.*

MY PICTURES ARRIVE AS CUT-OUTS

The file data must therefore be stored as RGBA. Quantel can receive RGB and RGBA (where A is the alpha channel or stencil plane). It automatically creates cutouts from RGBA data. Pictures, stencils and cutout can all be sent and retrieved using FTP.

I SENT SOME PICTURES BUT I CANT FIND THEM

Check that there are no switches which are filtering your search. For example, if **/sten** has been set the searches will list only stencils. So if you sent a picture this would not show in the search results. This can also be the result of setting the FTP server to expect a particular format eg /tga but sending TIFF. The file transfers will take place but the file will not be visible on the shared disk.

Advice: *Check that the file format you wish to send matches the file format switch eg* ***/tga****. Change directory to* ***/def.*** *This will flush all settings to default. You can now enter the appropriate switch as required for your search.*

THE DIRECTORY LISTING IS NOT SUITABLE FOR MY CLIENT APPLICATION.

Use the **/format** and **/files** switches to change the presentation of the directory listing.

WHAT IF I DO NOT HAVE THE FONT IN THE CORRECT TRUETYPE FORMAT?

Where possible the font should be sourced from the relevant font manufacturer. If not it may be possible to convert it using a range of applications both commercial and shareware. This is subject to the font license terms of the particular font manufacturer.

See the Contacts section for more information.

ONCE TRANSFERRED CAN THE TRUETYPE FONTS BE COPIED?

Yes. Once the TrueType fonts have been transferred to a Quantel system they can be copied to and stored on:

- Quantel Local/Shared disks
  Using normal Quantel Library functions
- Quantel Net-shared disks
  Other Quantel systems available using Picturenet
- Quantel Magneto-Optical disks
  For storage or distribution to other non-networked Quantel machines.

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WHICH QUANTEL MACHINES SUPPORT TRUETYPE FONTS?

Contact your Quantel Sales representative for current information.

The following machines support TrueType fonts:

Machine	S/w Version
Paintbox	2.05
Hal Express	5.07
Henry	5.83

Useful Contacts

OPEN@QUANTEL.COM

Quantel's website has a section dedicated to Quantel's OPEN technologies of which the TCP/IP implementation is one. Information contained in this booklet will be available there. In addition there are developer resources like Quantels VPB specification and other useful information. Check out the OPEN section on www.quantel.com.

There are also many different FTP and file format applications widely available. Many of these can be downloaded via Internet (subject to license and payment conditions). Quantel does not specifically endorse or recommend any of these. They are mentioned for illustrative purposes only.

If you know of or use any other applications for FTP connections to Quantel or know of other applications which support Quantels VPB format (or should!) then please e-mail open@quantel.com.

FETCH

Fetch is An FTP application from Dartmouth College, USA. It can be obtained on Internet by accessing the Dartmouth College FTP site address: ftp.dartmouth.edu or e-mail Fetch@dartmouth.edu. Fees may be payable.

WS_FTP PRO

WS_FTP Pro is one of a suite of FTP tools from Ipswitch. It can be obtained by accessing their website: www.ipswich.com. Fees may be payable.

GRAPHIC CONVERTER

Graphic Converter is a scriptable file format conversion application for Macintosh. It supports Quantels VPB format. It is available from Lemkesoft on www.lemkesoft.de. Fees may be payable.

DEBABELISER

Debabeliser is a scriptable file format conversion application for Macintosh and Windows. It has planned support for Quantels VPB format. It is available from software suppliers. Contact www.equilibrium.com for further information.

WINDOWS NETWORKING

The World-Wide Web has many useful sites with information and s/w for TCP/IP and FTP. FTP is widely and specifically documented.

FONT APPLICATIONS

These are useful applications for conversion between the various font formats. In addition, some operating systems like Windows NT, provide support for conversion between formats when installing fonts

TTConverter
Version 1.5 converts Macintosh TrueType to PC TrueType and vice versa. Shareware. Available from many FTP sites. Contact: creed@ccwf.cc.utexas.edu or chrisreed@aol.com.

Fontographer
Commercial font design program. Available for Mac/Windows. Enables creation and conversion of TrueType fonts. Contact: Macromedia http://www.macromedia.com.

Refont
Refont can convert between PC and Macintosh forms of Type 1 and between PC and Macintosh forms of TrueType. Contact: Acute Systems, PO Box 37, Algonquin, IL60102 USA or e-mail 71355.470@compuserve.com.

Aspect Ratio Summary

This is a brief summary of the issues.

Whilst Quantel provides extensive built-in support for many broadcast picture aspect ratios (like 4:3) the mix of systems in production can mean that computer-based applications are used to generate pictures (for example, animation sequences). If pictures are transferred back and forth between video/broadcast equipment and computer systems it is important to recognise where aspect ratio can affect picture geometry. It is therefore important to differentiate between picture aspect ratio and pixel aspect ratio.

Aspect ratio of pictures is the ratio of length to height of pictures. For example most TV screens show 4:3 or four units across to three units in height. Aspect ratio of pixels is the ratio of the area of a picture for one pixel.

The ITU-R 601 coding standard defines luminance pixels which are not square. In the 525/60 format there are 486 active lines each with 720 samples of which 711 may be viewable due to blanking. Therefore the pixel aspect ratio on a 4:3 screen is:

> 486/711 x 4/3 = 0.911 (ie the pixels are taller than they are wide).

For the 625/50 format there are 576 active lines each with 720 samples of which 702 are viewable so the pixel aspect ratio is:

> 576/702 x 4/3 = 1.094 (ie the pixels are wider than they are tall).

THIRD-PARTY APPLICATIONS

Regardless of TIFF or TARGA file formats many applications on computer based graphic systems produces images with square pixels (1:1 pixel aspect ratio). Many of these applications also treat imported image files as having square pixels (ignoring any pixel aspect ratio information recorded in the file header). As a result pictures can be re-aspected. The effect on PAL sourced images appears as horizontal squashing and NTSC as vertical squashing.

When creating files many applications omit aspect ratio information from the appropriate field within file headers. Unless the pixel aspect ratio information is correctly provided, transferring files between different platforms may produce errors in picture geometry. Video/broadcast aware applications such as Kinetics 3D Studio are knowledgeable about the differences between broadcast and square shaped pixels. Pixel aspect ratio information can therefore be included in the header when writing files.

If the intention is to move files back and forth between systems it is therefore important to use applications which can handle pixel aspect ratio.

QUANTEL FILE FORMAT CONVERSIONS

Incoming files in Quantel VPB format need no conversion. Incoming files in TIFF or TARGA format are automatically converted to Quantel VPB. This conversion reads pixel aspect ratio information in the TIFF/TARGA header. This should describe whether the image is square pixels (1:1) or some other pixel aspect ratio (eg 1.094 or PAL). Once converted to VPB format the file is saved to the shared disk and the pixel aspect ratio written into the Quantel VPB header.

LOADING IMAGES

When the file is loaded using normal library access the pixel aspect ratio information in the header is used to determine how the file is handled. If the file is square pixels (1:1) the way the file is treated depends on the picture dimensions in horizontal and vertical pixels and whether the system is defined as PAL or NTSC. Files which do not match PAL or NTSC proportions are resized until horizontal and vertical dimensions fit. In some cases this may result in padding with black.

Note 1:

In practice using any horizontal dimension that is not an exact multiple of 8 will result in rounding up or down during the resize operation. For a best PAL/NTSC fit one should adjust the vertical square pixel dimension on the original file whilst maintaining a number of horizontal pixels exactly divisable by 8.

Note 2:

A level of picture quality could be sacrificed depending upon the size of the original file and how much the Quantel machine needs to resize the image to fit the PAL framestore.

Note 3:

The process of resaving a loaded image to disk alters the original format and file information to Quantel VPB file. Image width and height are represented in PAL/NTSC pixels and no further converting is necessary when recalling the newly saved image.

WORKING EXAMPLES

The following examples for PAL and NTSC can be used as a guide for the outcome of file transfers. All files are transferred to Quantel in TIFF or TARGA and originate with square pixel aspect ratio.

PAL Examples

File Dimensions (sq pixels)	Results
720 by 576	Black edges left and right
768 by 576	Black edges left and right

NTSC Examples

File Dimensions (sq pixels)	Results
720 by 488	Image proportionally resized. Black edges top and bottom
648 by 486	Close fit, image enlarged
648 by 488	Closer fit, image enlarged
720 by 536	Accurate fit, no resize